

REMARKS

Claims 1-16 are currently pending. Claims 17-27 have been withdrawn due to a Restriction Requirement. Claims 1, 3-12 and 14-16 have been amended.

In the Office Action, the Examiner:

rejected claims 1-12 and 14-16 under 35 USC § 112, second paragraph, as being indefinite;

rejected claims 1, 2 and 11-16 under 35 USC § 102(e) as being anticipated by Hampden-Smith et al. (US Publication No. 2003/0198849); and

rejected claims 3-10 under 35 USC § 103(a) as being unpatentable over the Hampden-Smith Publication.

Applicants have amended claims 1, 3-12 and 14-16 to particularly point out and distinctly claim the subject matter that Applicants regard as the invention. Although, Applicants do not agree that claims 1-12 and 14-15 are omnibus-type claims, Applicants have amended "greater than about" to read as "greater than or equal to." Applicants believe that these amendments overcome the rejections under 35 USC § 112, second paragraph.

The Examiner rejected claims 1, 2 and 11-16 under 35 USC § 102(e) as being anticipated by Hampden-Smith et al. (US Publication No. 2003/0198849). Applicants assert that the Hampden-Smith Publication is not proper 102(e) art.

Specifically, the present application claims benefit of a priority date that predates the cited reference. In detail, the present application claims priority as a continuation-in-part from US Application Serial No. 10/327,300, filed on December 20, 2002, and from US Provisional Applications: Serial No. 60/343,700, filed on December 27, 2001, Serial No. 60/390,174, filed on June 19, 2002, and Serial No. 60/412,755, filed on September 23, 2002, via US Application Serial No. 10/327,300. Thus, the earliest relied upon US priority filing date of the present application is December 27, 2001.

Furthermore, Applicants assert that explicit support for claim 1 in its entirety is to be found in the provisional applications, each of which predates the filing date of the cited Hampden-Smith Publication. For example, the metal loading of carbon aerogels for use in fuel cell membranes and membrane electrode assemblies (MEAs) finds explicit support at least on page 2 of the '174 Provisional Application. That the carbon aerogel may have a surface area of greater than or equal to $400 \text{ m}^2/\text{g}$ finds explicit support at least on page 7 of the '174 Provisional Application. That the carbon aerogel has an average pore size of greater than or equal to 3 nm finds explicit support at least on pages 7 and 10 of the '174 Provisional Application. That a plurality of crystals of metal atoms is dispersed on the aerogel supporting structure, the crystals being about 1 nm to about 4 nm in diameter, finds explicit support at least on page 11 of the '174 Provisional Application.

The filing date of the Hampden-Smith Publication is October 24, 2002, which post-dates the current application's US priority date. Thus, the Hampden-Smith Publication is not section 102(e) art.

The cited Hampden-Smith Publication is a continuation-in-part of Application Serial No. 09/815,380, filed on March 22, 2001, and issued as US 6,967,183 on November 22, 2005. Applicants submit that the invention claimed in the present application is not disclosed in the '183 Hampden-Smith Patent, and provide the following comments.

Specifically, the '183 Hampden-Smith Patent fails to disclose loading metal on carbon aerogel. Rather, the '183 Hampden-Smith Patent discloses that the inventive "composite electrocatalyst particles are those that include within the individual particles at least a first active species phase, such as a metal or a metal oxide that is dispersed on a support phase, such as carbon or a metal oxide" (col. 9, lines 8-14), and that these composite electrocatalyst particles are "produced by spray conversion of precursors to the particulate materials" (col. 1, lines 17-19, Field of the Invention). Importantly, the only method disclosed by the '183 Hampden-Smith Patent for producing the composite electrocatalyst particles

involves a liquid precursor being converted to aerosol form (via spray processing, spray conversion or spray pyrolysis) and liquid from the droplets in the aerosol being removed to permit formation of the desired particles (col. 14, lines 15-48). This process creates individual "primary particles," which may then "agglomerate" into a "secondary support structure." An agglomeration of particles is cluster of particles that are adhesively, i.e. loosely, stuck together, as opposed to being structurally linked together.

Aerogels, which comprise a rigidly interlinked structure, cannot be formed by the methods disclosed in the '183 Hampden-Smith Patent. Aerogels are formed by a sol-gel polycondensation reaction and the subsequent relatively slow removal of the solvent using a supercritical fluid solvent exchange. The '183 Hampden-Smith Patent fails to disclose forming metal loaded aerogels.

The '183 Hampden-Smith Patent does use the word "aerogel"—once. When discussing the overall density of agglomerated primary particles (referred to therein as the secondary support phase) and the advantages of high porosity, the '183 Hampden-Smith Patent provides the density of aerogel carbon or metal oxide as a comparison example (col. 12, lines 12-27). However, this example of the density of aerogel does not teach or suggest that agglomerated primary particles as disclosed by the '183 Hampden-Smith Patent are aerogels. And, in fact, as aerogels cannot be formed via the spray conversion process taught by Hampden-Smith, the '183 Hampden-Smith Patent cannot and does not teach or suggest loading metal onto an aerogel supporting structure.

Thus, Applicants submit that the Hampden-Smith Publication is not a proper section 102(e) reference and that the '183 Hampden-Smith Patent fails to disclose the claimed invention. As each and every rejection presented in the Office Action has been addressed, Applicants submit that claims 1-16 are in condition for allowance. Applicants respectfully request that the Examiner withdraw the rejections and pass the claims to issue.

Application Serial No. 10/695,214
Response dated November 7, 2006
Reply to Office Action dated May 8, 2006

Should the Examiner have any questions regarding the present application, Applicants respectfully requests that the Examiner contact Applicants' representative at the phone number listed below.

A check in the amount of \$1200.00 is enclosed to cover fees for a three-month extension of time in the amount of \$1020.00 and a \$180.00 fee for the filing of the Information Disclosure Statement attached herewith. Applicants respectfully request that any deficiencies in the fees be charged to Deposit Order Account No. 13-0235.

Respectfully submitted,

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